

Balbiviana Small and in one of the southwestern oaks, *Quercus fusiformis* Small. It is interesting to note in this connection that in certain of our common oaks (*Quercus rubra* L., *Q. palustris* DuRoi, *Q. coccinea* Wang., and *Q. velutina* Lam.) while vivipary, in the exact sense, has not been observed, nevertheless in these germination commences immediately upon the fruit reaching the ground in the autumn.

Vivipary, it seems, is by no means the unusual condition it has generally been supposed to be.

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A KEY TO THE NORTH AMERICAN SPECIES OF RUSSULA—II *

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SECTION 3, RIGIDAE

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| 1. Pileus dry, smooth, glabrous.† | 2. |
| Pileus pruinose, furfuraceous, areolate, etc. | 5. |
| 2. Pileus white or tinted. | 3. |
| Pileus deep red or bright red. | 4. |
| 3. Taste mild; pileus often rose-tinted. | <i>R. albella</i> Pk. |
| Taste acrid; pileus pure ivory-white. | <i>R. albidula</i> Pk. |
| 4. Stipe white or reddish-white; pileus cinnabar-red, acrid. | <i>R. rubra</i> Fr. |
| Stipe blood-red; pileus blood-red or purplish-red. | <i>R. Linnaci</i> Fr. |
| 5. Pileus pure white, then alutaceous, rivulose. | <i>R. lactea</i> (Pers.) Fr. |
| Pileus yellow, paler with age, slightly mealy. | <i>R. flavida</i> Frost |
| Pileus grayish-brown, pulverulent or scurfy. | <i>R. pulverulenta</i> Pk. |
| Pileus cinnamon, rimose, then floccose. | <i>R. cinnamomea</i> Bann. |
| Pileus greenish, areolate. | <i>R. virescens</i> (Schaeff.) Fr. |
| Pileus rose-red. | 6. |
| Pileus changeable, often dingy purple when young. | 7. |
| 6. Pileus with disk lighter, whitish, rimose-scaly. | <i>R. lepida</i> Fr. |
| Pileus with disk darker, pulverulent, shining. | <i>R. Mariae</i> Pk. |
| 7. Lamellae white; pileus areolate. | <i>R. cutifracta</i> Cke. |
| Lamellae yellow; spores yellow; pileus silky-squamulose. | <i>R. olivacea</i> Fr. |

* Continued from page 103.

† Some of the species assigned to section *Rigidae* are glabrous and perhaps should be excluded.

SECTION 4, HETEROPHYLLAE

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| 1. Pileus flesh-color or pink. | 2. |
| Pileus yellow or ochraceous. | 5. |
| Pileus brown or gray-brown. | 6. |
| Color of pileus changing, variable. | 7. |
| 2. Stipe concolorous, pale flesh-color. | <i>R. polyphylla</i> Pk.* |
| Stipe white. | 3. |
| 3. Margin of pileus tuberculate-striate, ochraceous. | <i>R. elegans</i> Bres. |
| Margin of pileus even, not striate. | 4. |
| 4. Lamellae crowded, shining white. | <i>R. vesca</i> Fr. |
| Lamellae distant, white to pale pink. | <i>R. Morgani</i> Sacc. |
| 5. Stipe whitish, equal; lamellae white, acrid, inodorous. | <i>R. granulata</i> Pk. |
| Stipe concolorous, equal; lamellae yellow, acrid, inodorous. | <i>R. simillima</i> Pk. |
| Stipe white above, reddish below, ventricose; lamellae white, discolored in drying. | <i>R. ventricosipes</i> Pk.* |
| 6. Margin of pileus tuberculate-striate; fetid. | <i>R. foetens</i> (Pers.) Fr. |
| Margin of pileus even; inodorous. | <i>R. consobrina</i> Fr. |
| 7. Pileus at first usually with some shade of red. | 8. |
| Pileus never reddish, often dingy green; mild. | <i>R. heterophylla</i> Fr. |
| 8. Flesh white, acrid; lamellae narrow. | <i>R. variata</i> Bann. |
| Flesh red under the cuticle; mild; lamellae broad. | <i>R. cyanoxantha</i> (Schaeff.) Fr. |

SECTION 5, FRAGILES

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| 1. Lamellae and spores white, not turning yellow. | 2. |
| Lamellae white, then yellow; spores lemon-yellow. | 8. |
| Lamellae and spores ochraceous. | 16. |
| 2. Pileus white or whitish. | 3. |
| Pileus some shade of yellow. | 4. |
| Pileus dark brown, then pale tan. | <i>R. pectinata</i> Fr. |
| Pileus some shade of red. | 5. |
| 3. Pellicle not viscid or separable; stipe solid. | <i>R. anomala</i> Pk. |
| Pellicle viscid; stipe hollow or stuffed. | <i>R. albida</i> Pk. |
| 4. Stipe short, 2-3 cm.; lamellae rounded behind. | <i>R. ochroleuca</i> (Pers.) Fr. |
| Stipe longer, 5-8 cm.; lamellae subdecurrent. | <i>R. citrina</i> Gillet |
| 5. Taste mild. | 6. |
| Taste acrid or peppery. | 7. |
| 6. Small, 2-4 cm.; margin striate; lamellae interveined. | <i>R. uncialis</i> Pk. |
| Larger, 4-6 cm.; margin even; lamellae not interveined. | <i>R. purpurina</i> Quel. |
| 7. Pileus tuberculate, rugose; stipe spongy, tardily acrid. | <i>R. rugulosa</i> Pk. |
| Pileus polished, shining; stipe solid, firm, elastic. | <i>R. emetica</i> Fr. |
| Pileus polished, shining; stipe hollow or stuffed, fragile. | <i>R. fragilis</i> (Pers.) Fr. |
| 8. Pileus white or pallid. | <i>R. adulterina</i> (Fr.) Pk. |
| Pileus some shade of yellow. | 9. |

* Said by Professor Peck to belong probably in section Rigidae.

- Pileus some shade of red, at least when young. 10.
 Pileus changeable, usually from purplish to olivaceous. 14.
9. Pileus orange, then paler; flesh white, changing to cinereous. *R. decolorans* Fr.
 Pileus yellow or orange, disc darker; flesh white, unchanging, yellow under the
 cuticle. *R. aurata* Fr.
10. Stipe white with no reddish tints. 11.
 Stipe more or less reddish. 13.
11. Small, pileus 2.5 cm. *R. pusilla* Pk.
 Larger, pileus 5-12 cm. 12.
12. Margin of pileus even; taste peppery. *R. paxilloides* Earle.
 Margin furrowed, tubercular; taste mild or subastringent. *R. integra* Fr.
13. Pileus smooth; lamellae subdistant, interveined. *R. integra rubrotincta* Pk.
 Pileus smooth; lamellae somewhat crowded, interveined. *R. palustris* Pk.
 Pileus punctate; lamellae not interveined. *R. punctata* Gillet
14. Lamellae subdistant, interveined. *R. abietina* Pk.
 Lamellae crowded. 15.
15. Stipe soon hollow; pileus fading to yellowish. *R. puellaris* Fr.
 Stipe soon hollow; pileus deep purple, disc black. *R. puellaris intensior* Cke.
 Stipe stuffed, soft; pileus 2.5-5 cm. *R. nitida* (Pers.) Fr.
 Stipe solid, spongy; pileus 7-12 cm. *R. decolorans* Fr.
16. Pileus some shade of yellow. 17.
 Pileus some shade of red, at least when young. 21.
 Pileus some shade of purple, often variable. 22.
17. Stipe white or whitish. 18.
 Stipe ochraceous. *R. ochracea* Fr.
18. Margin of pileus even. *R. lutea* (Huds.) Fr.
 Margin striate with age. 19.
19. Small; pileus 2.5-5 cm. 20.
 Larger; pileus 5-10 cm., pale yellow, mild or subacid. *R. flaviceps* Pk.
20. Pileus light yellow, then pallid; lamellae saffron. *R. vitellina* Fr.
 Pileus flesh-color, then yellow; lamellae ochraceous. *R. chamaeleontina* Fr.
21. Pileus 4-7 cm.; stipe rosy pruinose. *R. roseipes* (Secr.) Bres.
 Pileus 15 cm.; stipe glabrous. *R. alutacea* Fr.
22. Pileus dark purple or blackish-purple. 23.
 Pileus lighter, fading to pallid. *R. nauseosa* Fr.
23. Stipe red, lamellae yellow from the first. *R. ochrophylla* Pk.
 Stipe white, lamellae at first white, changing color when injured.
R. atropurpurea Pk.